



CEDIS

Circular Economy in Digital Storytelling

Desk Research Turkey



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1. The context

The CEDIS project, which stands for Circular Economy in Digital Storytelling, aims to rethink key concepts such as 'circular economy', 'sharing', 'efficiency', 'sustainable development' and 'everyday behaviour' across Europe. The aim is to reduce the impact of climate change on participants' lives. Inclusion and diversity, environmental concerns, circular economy principles, digital storytelling methodology and digital conversion approach are the core pillars of the project.

In recent years, climate change has affected many regions of the world, resulting in various impacts. The Digital Storytelling School Education Methodology promoted by CEDIS emphasises collaboration and trust. It encourages teachers and students to consider forms of sharing and co-ownership within their protected contexts, as well as sharing assets based on their interests and living environments.

Digital storytelling has emerged as an important aspect of contemporary education, especially in secondary schools. It provides an interactive tool for expression and learning, combining traditional storytelling methods with digital media. In classrooms, the process begins with the selection of a topic relevant to students, ranging from historical events to personal reflections. Students engage in critical thinking and collaborate with peers, refining their stories until they are engaging and impactful.

2. The desk research

The main objective of this working paper is to research and compile various general and national information, data. The main objective of this working paper was to research and compile general and national data, information, and resources related to Digital Storytelling (DST) as a learning methodology and Circular Economy (CE) as a topic for secondary education.

Project partners investigated previous experiences of using DST to teach Circular Economy across different fields and sectors. The collected material provided an up-to-date overview of digital tools and software, particularly mobile applications, suitable for DST. These tools were analyzed in terms of accessibility for students, ease of installation and use, cost-effectiveness (preferably free), and relevance to current trends in media consumption, such as the shift among young people from platforms like YouTube to TikTok. This analysis contributed to improving teachers' and students' media literacy, including awareness of open-source versus proprietary software and platform-based economies.

Partners selected and documented a set of Best Practices (three per country) related to DST and Circular Economy education, including national initiatives and learning materials available in each partner's language. The research also examined how Circular Economy and Sustainability topics were addressed across different national school curricula, acknowledging country-specific priorities and practices (e.g. plastic waste, electronic waste, sharing economy).

In addition, six video interviews with national experts or activists (one per partner country) were conducted to provide professional insights into DST and Circular Economy. An exemplary list of potential topics for student-produced digital stories and a list of suitable digital tools for their dissemination were also developed.

The desk research consists of 4 different sections

- **DST in the Secondary School Context.**

Report on up-to-date, existing digital tools and devices to apply DST in schools, descriptive types of Digital Stories and their current use in secondary schools and usability in the Classroom.

- **Collection of Best Practices.**

Collection of Best Practices of Digital Storytelling on Circular Economy in any field or sector.

- **National Reports about Education.**

Six National Reports about Education on Circular Economy in Secondary Schools (English and the six project's national languages).

- **Interview with a national expert.**

Collection of high-quality Video Interviews to national experts/activists on Digital Storytelling and on Circular Economy. 1 for each partner

3. Key Findings on DST in the Secondary School Context

3.1 The use of DST in the Secondary School Context.

Turkey's education system has been increasingly incorporating digital technologies to enhance teaching and learning experiences. This includes the use of DST as an educational tool. The Ministry of National Education (MoNE) supports digital learning through various initiatives and platforms, aiming to improve digital literacy and integrate innovative teaching methods across subjects, including environmental education and sustainability.

Integration and Adoption of DST in Turkey can be summarised as following:

- **Government Initiatives and Digital Education Strategy:**

The Turkish Ministry of National Education (MoNE) has shown a strong commitment to integrating technology into the educational system. Initiatives such as the FATIH project and the EBA (Education Informatics Network) platform signify a nationwide effort to digitalize education, providing infrastructure, resources, and training for teachers and students. These initiatives create a conducive environment for implementing DST by offering the necessary technological tools and platforms for digital content creation and sharing.

- **Teacher Training and Professional Development:**

In alignment with global educational trends, Turkey recognizes the crucial role of teachers in integrating technology into classrooms. There is a concerted effort to enhance teachers' Technological Pedagogical Content Knowledge (TPACK) levels through professional development programs. These programs are aimed at equipping teachers with the skills to effectively use digital tools, like DST, in their teaching practices. While specific data on DST-focused training is limited, the general push towards digital literacy among teachers supports the incorporation of DST methodologies.

- **Research and Pilot Projects:**

There has been an increasing interest in researching the impact of digital tools on education within Turkey. Studies and pilot projects investigating the use of DST in educational settings have demonstrated positive outcomes, including increased student engagement, motivation, and understanding of complex concepts. These research efforts help in understanding the effectiveness of DST and in advocating for its wider adoption in Turkish schools.

- **Challenges and Opportunities:**

Despite these positive developments, there are challenges to the widespread adoption of DST in Turkey's educational system. These include varying levels of access to technology across regions, the need for more comprehensive training for teachers in digital tools, and the integration of DST into the curriculum. However, the ongoing digital transformation in education presents significant opportunities for DST to enhance learning experiences, promote digital literacy, and foster creativity among students.

- **Future Directions**

The future of DST in Turkey's educational landscape looks promising but requires concerted efforts in several key areas:

- A. **Enhanced Teacher Training:** Building on existing professional development programs to include more focused training on DST and its application in teaching.
- B. **Curriculum Integration:** Embedding DST projects and assignments within the curriculum across subjects to encourage its regular use.
- C. **Infrastructure and Access:** Continuing to invest in the digital infrastructure of schools and reducing the digital divide to ensure all students have the opportunity to benefit from DST.
- D. **Research and Evaluation:** Conducting further studies to evaluate the impact of DST on

educational outcomes and to refine its implementation strategies.

3.2 Types of Digital Stories

Digital storytelling (DST) in educational settings, particularly in secondary schools, leverages the power of storytelling with digital multimedia elements such as images, sound, and video to create engaging and educational content. In the context of Turkey, as in many parts of the world, the use of DST in secondary education aligns with broader educational objectives of enhancing digital literacy, fostering creativity, and improving subject comprehension among students. DST can be categorized into various types based on the purpose, content, and audience. Below are some types of digital stories commonly used in secondary schools, along with insights into their current use in Turkey's educational landscape.

- 1. Personal Narratives:** Personal narratives allow students to tell their own stories, focusing on personal experiences, reflections, or significant life events. This type of DST is particularly effective in subjects like Turkish Language and Literature or Social Studies, where students can explore identity, culture, history, and personal development. In Turkey, personal narratives are used to encourage self-expression and to help students develop a deeper understanding of their culture and personal identity.
- 2. Historical Documentaries:** Historical documentaries in DST format enable students to explore historical events, figures, or periods through research and storytelling. This approach is commonly utilized in History and Social Studies classes. Turkish secondary schools may use DST to delve into Turkey's rich history, from the Ottoman Empire to the modern republic, enabling students to explore historical contexts, understand historical figures' perspectives, and critically engage with historical narratives.
- 3. Educational Content Stories:** These stories are designed to explain concepts, processes, or phenomena in various subjects like Science, Mathematics, or Languages. Teachers and students create DSTs that simplify complex ideas or theories, making them more accessible and engaging. In the Turkish educational context, such digital stories are increasingly used as part of the STEM (Science, Technology, Engineering, and Mathematics) curriculum, as well as in language teaching, to enhance understanding and retention of subject matter.
- 4. Instructional Stories:** Instructional stories provide step-by-step guidance or tutorials on performing specific tasks or solving problems. This type of DST is particularly relevant in practical subjects such as Information Technology, Art, Music, and Physical Education. Turkish secondary schools may incorporate DST to teach coding, artistic techniques, musical instruments, or sports strategies, providing an interactive learning experience.
- 5. Social and Environmental Stories:** These stories focus on social issues, environmental concerns, or community projects. They are used to raise awareness, promote advocacy, or encourage action on various topics such as environmental protection, social justice, and community service. In Turkey, such DST projects align with global citizenship education goals, encouraging students to engage with social and environmental issues both locally and globally.

3.3 Usability of DST in the classroom.

Current Use in Turkish Secondary Schools: The integration of DST in Turkish secondary schools is supported by national digital education initiatives and platforms like EBA (Education Informatics Network). Teachers are increasingly leveraging DST to:

- Enhance student engagement and motivation.
- Improve digital literacy and media production skills.
- Foster critical thinking, creativity, and collaborative work.
- Facilitate personalized and learner-centered approaches.

Professional development programs for teachers aim to enhance their skills in digital tools, including DST, to ensure effective integration into teaching practices. Furthermore, national and regional competitions, as well as school-based projects, encourage the creation and sharing of digital stories, highlighting innovative uses of technology in education. While the implementation and usage of DST vary across regions and schools, depending on access to technology and teacher expertise, there is a clear trend towards embracing digital storytelling as a valuable tool for enriching education and engaging students in meaningful learning experiences. More specifically, incorporating Digital Storytelling (DST) in the classroom offers a dynamic approach to teaching and learning, providing students with opportunities to engage deeply with content across various subjects. While specific classroom examples from Turkey might not be universally documented, we can infer from the broader trends in educational technology use in Turkey and worldwide how DST is being utilized. Here are several illustrative examples and use cases highlighting the potential applications of

DST in Turkish classrooms:

1. Language and Literature

Project: Creating Personal Narratives

Description: Students craft digital stories centered around a theme from a novel or poem they are studying. They combine personal experiences with thematic elements from the text, using images, voiceovers, and music to enhance their narratives.

Outcome: Enhanced comprehension of literary themes and improved storytelling, writing, and digital production skills.

2. History and Social Studies

Project: Historical Documentaries

Description: Small groups of students select a significant event in Turkish or world history to research. They create digital documentaries using historical images, primary sources, voice narration, and video clips to present their findings.

Outcome: Deeper understanding of historical events, improved research skills, and the ability to critically analyze historical sources.

3. Science

Project: Explaining Scientific Concepts

Description: Students use DST to create short videos that explain scientific concepts or phenomena, such as the water cycle, photosynthesis, or the principles of physics. These stories integrate diagrams, animations, and narrations to make complex ideas accessible.

Outcome: Increased engagement with scientific content, enhanced understanding of complex concepts, and development of the ability to communicate scientific information effectively.

4. Mathematics

Project: Mathematical Problem-Solving Stories

Description: Students illustrate the process of solving a mathematical problem using DST. This involves outlining the problem, step-by-step solutions, and concluding with the solution, using visual aids and narrations to clarify the thought process.

Outcome: Improved problem-solving skills, deeper understanding of mathematical concepts, and enhanced ability to communicate mathematical reasoning.

5. Environmental Education

Project: Social and Environmental Advocacy Campaigns

Description: Students create digital stories focusing on local environmental issues, such as pollution, deforestation, or water conservation. They research the topic, propose solutions, and advocate for action through their stories, using persuasive language and compelling visuals.

Outcome: Increased awareness of environmental issues, development of advocacy skills, and engagement with community and global challenges.

Integration Strategies in Turkish Classrooms

Cross-curricular Projects: Teachers collaborate across subjects to create interdisciplinary DST projects, allowing students to explore connections between subjects.

Flipped Classroom Models: Teachers use DST as a tool for flipped learning, where students watch instructional stories at home and engage in hands-on activities or discussions in class.

Student Portfolios: Students create digital stories as part of their portfolios, showcasing their learning progress, achievements, and reflections over the school year.

Cultural Exchange Projects: Students collaborate with peers from other countries, creating and sharing digital stories about their cultures, histories, and daily lives, fostering global awareness and intercultural communication.

The use of DST in Turkish classrooms, as illustrated through these examples, emphasizes active learning, student creativity, and the integration of digital literacy skills across the curriculum. While the extent of DST utilization can vary based on resources and training, its benefits in fostering a more engaging, interactive, and meaningful learning experience are clear.

3.4 Digital tools and devices

1.	
Name	Storyjumper
Description (up to 500 characters)	Storyjumper is a platform where you can write, narrate, and publish your own storybooks with custom imagery, characters, and voice. You can also collaborate, inspire, and connect with other authors and readers who share your stories and make a lasting impact on the world.
Keywords	Storybooks, narration, custom imagery, collaboration, impact.
Language(s)	English (and potentially other languages).
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Creating personalized storybooks, engaging students in creative writing, and fostering collaboration.
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 (Moderately easy to use).
Price (put 0 for a free tool)	No cost to use StoryJumper online use.
Logo of the tool	
Link	https://www.storyjumper.com

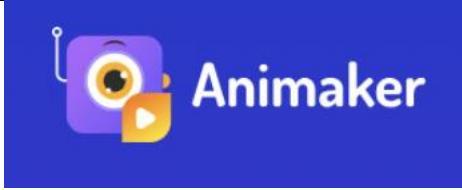
2.	
Name	PIXTON
Description (up to 500 characters)	Pixton is a comic and avatar maker for the classroom and beyond. It allows users to create comics, storyboards, and graphic novels. You can customize avatars, make family photos, and access educational content from Pixton's vast library.

2.	
Keywords	Comics, avatars, graphic novels, classroom, education.
Language(s)	English (and other languages).
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Teaching visual storytelling, creating educational comics, and engaging students in creative expression.
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 (Moderately easy to use).
Price (put 0 for a free tool)	Free and paid versions with premium features available.
Logo of the tool	
Link	https://www.pixton.com/welcome

3.	
Name	Storyboard That
Description (up to 500 characters)	Storyboard That is an online storyboard tool that makes it easy to create storyboards even without being an artist. Users can create digital stories using images, text, and storyboard templates. It's suitable for various projects, including graphic novels, comics, and video planning.
Keywords	Storyboarding, templates, digital storytelling, creativity.
Language(s)	English (and other languages).

3.	
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Planning narratives, visualizing scenes, and teaching storytelling concepts.
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 (Moderately easy to use).
Price (put 0 for a free tool)	Storyboard That offers various pricing plans, including a free version with limited features and paid subscriptions for per month and annually.
Logo of the tool	 StoryboardThat
Link	https://www.storyboardthat.com/purchase

4.	
Name	Animaker
Description (up to 500 characters)	Animaker is an online AI animation generator and video maker. It allows non-designers and professionals to create animation and live-action videos. With Animaker, you can produce studio-quality video content easily.
Keywords	Animation, video creation, AI-powered, non-designers.
Language(s)	English (and other languages).
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Creating animated educational videos, presentations, and engaging content.

4.	
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	2 (Moderately easy to use).
Price (put 0 for a free tool)	Free and paid versions with premium features available.
Logo of the tool	
Link	https://www.animaker.com

5.	
Name	Storybird
Description (up to 500 characters)	Storybird lets you create and share stories with stunning artwork from artists worldwide. You can choose from different genres, formats, and curriculum. Storybird empowers young writers to create unique stories with amazing illustrations.
Keywords	Artful storytelling, illustrations, writing, engagement.
Language(s)	English (and other languages).
Best suited for (name comma-separated tasks that can be achieved with the use of this tool)	Encouraging creativity, improving writing skills, and engaging students through visual storytelling.

5.	
Ease of use (provide a rating of 1 = very easy to use, 5 = extremely hard to use)	1 (Very easy to use).
Price (put 0 for a free tool)	Free and paid versions with premium features available.
Logo of the tool	 STORYBIRD
Link	https://storybird.com

4. Collection of Best Practices of Digital Storytelling on Circular Economy

4.1 Introduction to the selection of the best practices

The Digital Storytelling (DST) best practices on the circular economy in Turkey were chosen based on a number of criteria. The goal was to find projects that use digital storytelling in a way that effectively raises awareness, educates, and motivates action toward sustainable practices in the circular economy. These requirements are:

Impact: How much the digital storytelling projects have changed the target audience's knowledge of and behavior toward circular economy principles.

Innovation: The uniqueness and creativity shown in the way the story was told, such as the use of multimedia, interactive elements, and methods for keeping people interested.

Relevance: Making sure that the case studies are relevant to the social, economic, and environmental problems that people in Turkey face, so that the material makes sense in that setting and speaks to local audiences.

Scalability: The chance that the case study lessons and ways of telling stories could be used in bigger or different settings, making them more useful to more people.

Sustainability: Thinking about how the projects will last in the long run, like how they can keep people interested, adapt to new technology and social trends, and help people change their behavior in a way that lasts.

4.2 Best practices

1	
Case study name	"Circular Tales: Empowering Communities for Sustainable Practices"
Description of the context in which the best practices have been developed	The "Circular Tales" initiative emerged in response to the growing need for community-driven solutions to address waste management challenges and promote circular economy principles in urban areas of Turkey. Developed collaboratively by a team of environmental NGOs, local municipalities, and digital media experts, the project sought to harness the power of digital storytelling to engage citizens in reimagining waste as a valuable resource and adopting more sustainable consumption and production patterns.
Location	Urban centers in Turkey (e.g., Istanbul, Ankara, Izmir)
How the methodology of DST have been used to develop contents related to the Circular Economy	The utilization of Digital Storytelling technique played a crucial role in the creation of "Circular Tales," which implemented a collaborative approach to the generation of content. Residents were encouraged to participate in workshops and community gatherings to contribute their personal experiences, thoughts, and objectives around waste reduction and circularity. Subsequently, these narratives underwent a conversion process to become multimedia stories, encompassing short films, animations, and interactive web material. The objective was to create a strong impact on a wide range of audiences, including individuals of different ages, socio-economic statuses, and degrees of digital literacy.
Target group involved	The target group for "Circular Tales" encompassed a broad spectrum of stakeholders, including residents of urban neighborhoods, policymakers, teachers, educators, students and youth organizations. By fostering inclusive dialogue and collaboration, the initiative aimed to empower communities to take ownership of sustainable practices and drive systemic change.
Three most important issues the case study addresses	<p>Behavioral Change: Encouraging individuals and businesses to adopt more sustainable consumption habits and waste management practices.</p> <p>Community Engagement: Fostering a sense of collective responsibility and civic pride in creating cleaner, healthier, and more resilient urban environments.</p> <p>Policy Advocacy: Catalyzing dialogue between citizens and decision-makers to inform the development of more effective waste management policies and infrastructure investments.</p>
Outcomes of the case study (link)	The "Circular Tales" initiative has generated widespread public awareness and engagement around circular economy principles, reaching millions of viewers through online platforms, social media campaigns, and community screenings. By showcasing real-life examples of innovative waste reduction initiatives and highlighting the economic, environmental, and social benefits of a circular approach, the project has inspired individuals and organizations to adopt more sustainable practices in their daily lives and advocate for systemic change at the local and national levels.
Key words (or hashtags) related to the case study	#CircularEconomy #CommunityEngagement #SustainabilityStories

2	
Case study name	"From Waste to Wealth"
Description of the context in which the best practices have been developed	"From Waste to Wealth" was the result of a collaborative effort between academics, industry stakeholders, and digital media producers. The goal was to connect theoretical knowledge with practical solutions in the field of circular economy innovation. The project aimed to highlight the significance of storytelling in stimulating creativity and promoting interdisciplinary collaboration. It sought to demonstrate advanced research, technology, and business models that are propelling Turkey's shift towards a circular economy.
Location	Academic institutions, innovation hubs, and industrial clusters across Turkey
How the methodology of DST have been used to develop contents related to the Circular Economy	The Digital Storytelling methodology was used as a strategic tool to disseminate knowledge and involve stakeholders in the circular economy ecosystem. A sequence of multimedia storytelling workshops was organized to facilitate the exchange of experiences, insights, and success stories among researchers, entrepreneurs, and policymakers who have been involved in the development and implementation of circular innovation projects. The narratives were carefully selected and organized into a digital storytelling platform. This platform includes video interviews, case studies, interactive maps, and educational tools. Its purpose is to provide information and inspiration to a wide range of individuals, including students, professionals, and policymakers.
Target group involved	The intended audience consisted of a diverse group of stakeholders, encompassing students, academics, entrepreneurs, investors, legislators, and industry groups. The program sought to use digital media and online platforms to make knowledge more accessible and promote collaboration across different sectors. This would encourage collective efforts towards circular innovation and achieving sustainable development goals.
Three most important issues the case study addresses	<p>Knowledge Sharing: Disseminating best practices, research findings, and success stories in circular economy innovation to inspire and inform stakeholders across academia, industry, and government.</p> <p>Collaborative Learning: Facilitating interdisciplinary dialogue and collaboration among diverse stakeholders to co-create innovative solutions and address systemic barriers to circularity.</p> <p>Market Transformation: Catalyzing market demand for circular products and services by raising awareness of their economic, environmental, and social benefits and supporting ecosystem actors in overcoming adoption barriers.</p>
Outcomes of the case study (link)	From Waste to Wealth has emerged as a leading knowledge-sharing platform and community hub for circular economy stakeholders in Turkey, attracting thousands of users and contributors from academia, industry, and government. By showcasing real-world examples of circular innovation and highlighting the business case for sustainability, the initiative has catalyzed new partnerships, investments, and policy initiatives aimed at accelerating the transition towards a circular economy in Turkey.
Key words (or hashtags) related to the case study	#CircularInnovation #KnowledgeExchange #SustainableBusiness

Case study name	"EcoHeroes: Empowering Students for a Circular Future"
Description of the context in which the best practices have been developed	"EcoHeroes" is a pioneering educational initiative developed in collaboration with schools, environmental NGOs, and digital media experts to empower students as agents of change in advancing the principles of circular economy within their communities. Recognizing the importance of integrating sustainability education into the school curriculum and fostering hands-on learning experiences, the project seeks to inspire a new generation of eco-conscious citizens equipped with the knowledge, skills, and motivation to lead sustainable lifestyles and drive systemic change towards a circular future.
Location	Primary and secondary schools across Turkey
How the methodology of DST have been used to develop contents related to the Circular Economy	The methodology of Digital Storytelling serves as a cornerstone of the "EcoHeroes" initiative, which harnesses the power of storytelling to engage students in experiential learning and behavior change. Through a series of interactive workshops, classroom activities, and digital storytelling assignments, students are invited to explore key concepts of circular economy, such as resource efficiency, waste reduction, and sustainable consumption, within the context of their own lives and communities. Guided by educators and environmental mentors, students collaborate to identify local environmental challenges, develop creative solutions, and communicate their ideas through digital media projects, including short films, podcasts, and social media campaigns.
Target group involved	Students in elementary and secondary schools are the main target that "EcoHeroes" aims to impress. In order to strengthen sustainability education initiatives both in and out of the classroom, the initiative also involves a wider ecosystem of stakeholders, such as parents, teachers, school administrators, environmental groups, and local government agencies.
Three most important issues the case study addresses	<p>Environmental literacy: It refers to the process of improving pupils' comprehension of intricate environmental matters and cultivating a sense of individual accountability towards sustainable lifestyles and the protection of natural resources.</p> <p>Empowerment and Agency: Enabling students to become catalysts for change in their communities through the provision of opportunities for active engagement, development of leadership skills, and advocacy for sustainable practices.</p> <p>Community Engagement: Enhancing connections among schools, families, and local communities through cooperative initiatives and outreach endeavors that foster environmental consciousness, social solidarity, and joint efforts towards shared objectives.</p>
Outcomes of the case study (link)	"EcoHeroes" is a powerful influence in advancing sustainability teaching and empowering young people in Turkish schools. It has successfully reached numerous students and educators through its creative use of digital storytelling and experiential learning. The initiative has cultivated critical thinking, creativity, and teamwork skills among students, motivating them to assume responsibility for their learning and become advocates for sustainable development both inside their schools and in wider contexts. "EcoHeroes" has made significant contributions to improving school environments, reducing ecological footprints, and raising awareness of circular economy principles among students, educators, and the wider community. These contributions have been

	achieved through student-led initiatives such as waste audits, eco-clubs, and community clean-up campaigns.
Key words (or hashtags) related to the case study	#SustainabilityEducation #YouthEmpowerment #CircularSchools

5. National Reports about Education on Circular Economy in Secondary Schools

5.1 Introduction

A strategic public policy project spearheaded by the Ministry of National instruction in partnership with other relevant ministries in Turkey is bringing circular economy principles into secondary school instruction. It is critical, especially for schools, to understand the far-reaching effects of circular economy models as the country moves toward sustainable development. Secondary schools that embrace circularity are part of a larger national movement to raise eco-conscious individuals who can help solve environmental problems and build resilient economies.

Turkey has taken a multipronged approach to incorporate circular economy education into secondary school curricula and extracurricular activities, spearheaded by the Ministry of National Education and in collaboration with other ministries like the Ministry of Industry and Technology, the Ministry of Environment and Urban Planning, and the Ministry of Environment and Urbanization. Recognizing the critical role of young people in bringing about revolutionary change towards a circular economy, this project highlights the government's dedication to using education as a catalyst for sustainable development.

Turkey hopes that by incorporating circular economy ideas into secondary school, it may help students develop a strong sense of responsibility for the environment, efficient use of resources, and prevention of waste. This will hopefully inspire them to play an active role in the movement towards a more circular society. An educational strategy that places a premium on the circular economy is in line with Turkey's national goals of environmental protection and economic innovation, and it also shows the country's dedication to global initiatives like the EU Green Deal and the UN Sustainable Development Goals.

This national report aims to analyze the state of circular economy education in secondary schools across Turkey, including the policies, strategies, and results of this initiative. It will focus on the joint work of Turkish government agencies, educational institutions, civil society organizations, and business partners. This research seeks to add to the continuing conversation about how secondary schools in Turkey may promote sustainable development and a circular economy by highlighting successful programs, outlining obstacles, and suggesting next steps. Turkey can lay the groundwork for a more sustainable and affluent future for generations to come by establishing itself as an educational leader in the circular economy via concerted policymaking and community effort.

5.2 From Linear to Circular Economy, the directive of the Ministry of Education

The Turkish Ministry of Education is leading the charge to shift the country's economic model from linear to circular, and with this transformation comes a new era of opportunity. The government has devised thorough regulations to accelerate this shift in educational institutions across the country, acknowledging the importance of sustainable development and the power of circular economy models to bring about good change. Equipping students with the information, skills, and attitudes necessary to succeed in a circular economy paradigm is the overarching goal of these recommendations, which span curriculum creation, pedagogical innovation, infrastructure investment, and stakeholder involvement.

1. Curriculum Integration: The circular economy ideas must be included in secondary school curricula in a variety of subjects, including entrepreneurship, social studies, science, and technology, according to the Ministry of Education. Students are introduced to the circular economy and its applicability to other disciplines by incorporating ideas like sustainable consumerism, resource efficiency, and waste management into current course curricula.
2. Learning from Real-Life Experiences: The government is pushing for more experiential learning in schools by suggesting that students participate in projects, events, and field excursions that show how the principles of the circular economy are used in the actual world. Students get many chances to learn about and practice circularity through hands-on activities such as community gardening, upcycling workshops, waste audits, and sustainable design challenges.
3. Education for Educators: Teacher training programs that emphasize capacity-building, pedagogical innovation, and sustainability literacy are prioritized by the Ministry of Education to ensure the effective implementation of circular economy education. Teachers can learn how to incorporate circular economy principles into their lessons and create a more sustainable school climate through professional development opportunities like workshops, seminars, and online resources.
4. Collaborating Across Sectors: The government promotes cross-sectoral collaboration and partnership efforts because it recognizes that education, industry, government, and civil society are all interdependent in bringing about systemic change. In order to advance circular economy goals on a local and national scale, the Ministry of Education is seeking to establish partnerships with other relevant ministries, environmental groups, companies, and community members in order to harness synergies, exchange best practices, and mobilize resources.
5. Investment in Infrastructure: As part of its efforts to improve education, the government is prioritizing investments in school facilities and infrastructure to back circular economy programs. In order to develop a culture of environmental stewardship within educational institutions and to give students real examples of sustainable infrastructure, it is necessary to build environmentally friendly campuses, waste management systems, renewable energy installations, and green technology laboratories.
6. Tracking and Assessing: The Ministry of Education has put systems in place for tracking, assessing, and improving circular economy education programs to make sure they are having the desired effect. The Turkish government is aiming to optimize the effectiveness of the transition to a circular economy in schools by collecting data, requesting comments, and performing periodic assessments. This will allow them to track progress, identify obstacles, and adjust policies.

Overall, the Turkish government has taken a proactive and multi-pronged strategy to shifting from a linear to a circular economy. Their recommendations are based on sustainability, innovation, and

partnership principles. The Turkish government is hoping to foster a new generation of eco-conscious and socially-conscious individuals who will be able to make a difference in the world by teaching students about the circular economy in secondary schools. This would help ensure a sustainable and prosperous future for Turkey and all nations.

5.3 Conceptual Background of Circular Economy in Turkey

The Turkish circular economy takes a holistic approach to sustainable development that separates economic progress from resource depletion and environmental deterioration. The circular economy paradigm promotes closed-loop systems that reuse, recycle, and regenerate materials during their life cycle, efficient resource usage, and waste reduction.

Turkish conceptual framework components include:

Resource Efficiency: Turkey optimises resource use across all sectors to reduce dependency on finite resources and environmental effect. To prolong product and material life, cleaner production practices, energy efficiency, and eco-design are needed.

Waste Management and Recycling: Turkey is improving its waste management infrastructure and recycling rates to reduce landfill trash and promote circularity. This comprises expenditures in trash separation, collection, and recycling infrastructure and public awareness and incentive programs for sustainable consumption and waste reduction.

Innovation and Technology: Turkey understands the value of innovation and technology in achieving a circular economy. This entails funding research and development of innovative technologies, materials, and business models for resource efficiency, waste valorization, and closed-loop systems across industries.

Policy and Regulatory Framework: Turkey has laws, rules, and incentives to promote sustainable activities and discourage wasteful consumption to support the circular economy. This requires aligning national policies with international norms and commitments and encouraging government, commercial sector, and civil society engagement to achieve circular economy goals.

Education and Awareness: Turkey's circular economy framework promotes sustainability and environmental stewardship among citizens, corporations, and policymakers through education and awareness. This includes incorporating circular economy principles into school curricula, boosting environmental literacy, and encouraging public discussion on sustainable consumption and production.

Turkey's circular economy conceptual framework promotes economic growth, environmental sustainability, and social well-being through innovative resource management, waste reduction, and sustainable development.

Turkey wants to build a more resilient and inclusive economy that serves the needs of current and future generations while protecting the planet's scarce resources by adopting circularity.

5.4 Circular Economy and Sustainable Development

Turkey is working on a plan to create a circular economy and long-term growth that includes policy initiatives, rules and regulations, infrastructure investments, new ideas, and involvement of all stakeholders. Take a look at how Turkey is developing the cycle economy and sustainable development as a whole:

Policy and Regulatory Framework: To help the switch to a circular economy and move forward with sustainable development goals, Turkey has made a complete set of policies and rules. This includes rules, laws, and national plans that encourage using resources wisely, dealing with trash, using green energy, and making and using things in a way that doesn't harm the environment. The National Sustainable Development Strategy, the National Climate Change Strategy, and the Waste Management Strategy are some of the most important papers that Turkey uses to guide its work.

Strategic Planning and Coordination: To drive sustainable development initiatives, Turkey puts a lot of emphasis on strategic planning and coordination between government agencies, stakeholders in the private sector, civil society groups, and foreign partners. To do this, organizing bodies need to be set up. For example, the Ministry of Environment and Urbanization is in charge of environmental policies and rules, and the Ministry of Industry and Technology encourages new ideas and makes businesses more competitive.

Investments in Infrastructure: To support the circular economy, Turkey puts money into building garbage management facilities, recycling centers, renewable energy projects, and environmentally friendly transportation systems. The goal of these efforts is to make better use of resources, lower pollution, and create green jobs while also supporting economic growth and resilience.

Innovation and Technology: Turkey puts a lot of effort into developing new ideas and technologies because they are key to achieving sustainable growth and a circular economy. This includes funding research and development in areas like eco-design, green technologies, clean energy, and digital solutions for making the best use of resources and lowering trash. Partnerships between the public and private sectors, research institutions, and technology incubators are all very important for promoting new ideas and sharing information.

Public Awareness and Education: Turkey knows that educating and raising public awareness are important for promoting the ideas of circular economy and sustainable growth. Through educational campaigns, community outreach programs, and capacity-building initiatives, people in the community, companies, and lawmakers are made more aware of the problem. Including sustainability education in vocational training and school programs helps to teach kids about the world and how to be good citizens from a young age.

International Cooperation: To solve global environmental problems and reach its goals for sustainable growth, Turkey actively takes part in international cooperation and collaboration. As part of this, they take part in foreign partnerships, agreements, and projects like the UN's Sustainable Development Goals, the Paris Agreement on Climate Change, and the European Union's Circular Economy Action Plan.

To sum up, Turkey's method to promoting the circular economy and long-term growth includes policy frameworks, long-term planning, investments in infrastructure and new ideas, education and raising public awareness, and working with other countries. Turkey wants to make the future stronger, more inclusive, and more sustainable for its people and the planet by taking a whole-person and integrated strategy.

5.5 Turkish perspectives On Circular Economies

Turkey's perspective on the circular economy is grounded in the belief that transitioning towards circular practices is essential for achieving long-term prosperity, environmental sustainability, and social well-being. By embracing the circular economy as a guiding principle for policymaking, investment, and

innovation, Turkey aims to create a more resilient, inclusive, and sustainable future for its citizens and future generations.

6. Interview with a national expert/activist on Digital Storytelling and on Circular Economy.

6.1 Introduction of the expert

Burcu Solak is the one we have designated as our expert. She is an experienced educator at a public kindergarten and a recognised advocate known for her inventive instructional methods. She has effectively incorporated digital storytelling into her classroom, captivating young students and encouraging them to create their own narratives using digital technologies. She is quite skilled in training not just her pupils but also younger kids that visit, imparting to them the necessary skills and enthusiasm for digital storytelling.

The decision to interview this expert is based on her extensive engagement in both digital storytelling and the circular economy, which are essential for promoting sustainability and creativity in education. Her practical expertise with these cutting-edge teaching methods makes her a great repository of knowledge and understanding, especially in how digital storytelling can be utilised to instruct young students on intricate ideas like the circular economy.

6.2 Interview highlights on the Circular Economy

Exploring the Circular Economy: The expert shared her methods for introducing young children to the concepts of the circular economy, focusing on the importance of reusing, recycling, and maintaining sustainability.

Classroom Projects: This section outlined specific activities designed for young learners, such as creating recycled crafts and incorporating sustainability themes into their stories.

Influencing Young Minds: This part discussed how teachings on the circular economy impacted children's perceptions of environmental stewardship.

Overcoming Challenges: This segment covered the obstacles encountered while teaching young children about complex environmental issues, and the fulfillment of witnessing their comprehension and enthusiasm for these concepts.

6.3 Interview highlights on the use of Digital Storytelling

Educational Benefits: The discussion explored the cognitive and creative advantages that digital storytelling provided to young learners, such as enhanced language skills and improved imagination.

Technological Integration: The expert detailed how technology was integrated into her classroom for storytelling, including the specific types of software and digital tools used.

Parental and Community Involvement: The role of parents and the wider community in supporting digital storytelling activities was highlighted.

Future of Digital Storytelling in Education: The expert shared her perspective on how storytelling might evolve within the educational curriculum in the future.

6.4 List of the main topics to develop during the school lessons

Introduction to Storytelling: Basics of storytelling, including elements like characters, setting, and plot.

Using Digital Tools: Teaching students how to use specific digital tools and software for creating digital stories.

Story Creation: Guiding students through the process of creating their own digital stories, from idea generation to digital execution.

Collaborative Storytelling: Encouraging group projects that involve collaborative storytelling, enhancing teamwork and social skills.

Incorporating Themes: Integrating educational themes such as the circular economy into storytelling to teach broader concepts through engaging narratives.

7. Conclusion and recommendations

The integration of Circular Economy (CE) concepts and Digital Storytelling (DST) in educational settings, particularly through initiatives like CEDIS, showcases a promising pathway toward sustainable development. The insights from the interview with the expert underscore the potential of DST to engage young minds deeply and effectively in understanding the principles of circularity. By leveraging storytelling, educators can foster a sense of environmental responsibility and creativity among students from a young age.

Recommendations:

Expand Digital Storytelling Programs: Schools should integrate digital storytelling more broadly within their curricula to enhance students' understanding of complex subjects like the circular economy. This approach not only aids in knowledge retention but also improves digital literacy.

Enhance Teacher Training: Continuous professional development programs focused on DST and circular economy should be provided to teachers. These programs will equip educators with the necessary tools and techniques to effectively deliver these concepts in engaging ways.

Develop Collaborative Projects: Encourage projects that require collaboration between students, teachers, and the community to solve real-world problems using principles of the circular economy. This will help students apply their learning in practical settings, enhancing their problem-solving skills and civic engagement.

Leverage Technology: Schools should utilize the latest digital tools and platforms that facilitate storytelling, making these resources widely available to students to explore and create their own digital stories.

Foster Community Involvement: Parents and community members should be more actively involved in educational activities related to DST and the circular economy. Community engagement can provide broader support and more diverse resources for enriching the educational experience.

By following these recommendations, educational institutions can play a crucial role in preparing a future generation that is well-versed in sustainability practices and adept in using digital tools for creative and critical expression.

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